UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,518	06/27/2001	Robert William Dixon	STL9981/40046.155USU1	5994

28863 7590 04/12/2005

SHUMAKER & SIEFFERT, P. A.
8425 SEASONS PARKWAY
SUITE 105
ST. PAUL, MN 55125

EXAMINER	
CHEN, ALAN S	

ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/894,518	DIXON, ROBERT WILLIAM	
	Examiner	Art Unit	
	Alan S Chen	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,11-17 and 19-56* is/are pending in the application.

4a) Of the above claim(s) *57-60* is/are withdrawn from consideration.

5)☒ Claim(s) *1,3-9,11-17 and 19-24* is/are allowed.

6)☒ Claim(s) *25-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *57-60* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED FINAL ACTION

Election/Restrictions

1. Newly submitted claims 57-60 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the scope of the function disclosed is changed such that it pertains to switching between multiple data streams as opposed to a function simply based on the rates of the input and output data streams.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 57-60 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

2. Applicant's arguments with respect to claims 25-56 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25-56 rejected under 35 U.S.C. 102(b) as being anticipated by No. 5,566,208 to Balakrishnan.

5. As per claims 25, 45 and 49 Balakrishnan discloses a method, computer program product and system of allocating a buffer to handle a data stream (Fig. 3, Column 7, lines 60-Column 8,

lines 5) comprising: determining a buffer size for the data stream based on data rate information (Column 10, buffer size is dynamic based on equation) for the data stream; and allocating space in the buffer to each of the data streams according to the determined buffer sizes (Column 10, lines 50-64).

6. As per claims 26-29, 46, 47, 50, 51, 53 and 54, Balakrishnan discloses the method of claims 25, 45, 49 and 52 wherein determining the buffer size for each data stream further comprises evaluating a function of the data rate at which the buffer sends and/or receives each data stream (buffer size varies with output rate and input rate (Column 9 discloses variable output rates, also indicated in Fig. 4, element 80; Column 7, lines 35-60 discloses variable input rates; Equations 19-22 discloses functions for the buffer size).

7. As per claims 30-35, 48 and 56, Balakrishnan discloses claims 25, 45 and 52, further comprising receiving a request to change the data stream (Fig. 4, element 60, Column 12, line 40-45) being handled by the buffer, determining buffer size based on data rate (Fig. 4, element 68) and determining whether the total buffer sizes is large than available buffer space (Fig. 4, element 70) and the buffer sizes for each data stream are determined before the requested change takes effect (Fig. 4, element 80, the request takes effect, preceding elements determine the buffer size).

8. As per claim 36 and 37, Balakrishnan discloses claim 34, wherein the received request comprises a request to increase the number of data streams handled by the buffer (Column 5, lines 58-67, based on the fullness of the buffer, a feedback mechanism tells the input rate to be reduced).

9. As per claim 38-40, Balakrishnan discloses claims 34, wherein if the sum of the determined buffer sizes is larger than the available space in the buffer, then increasing the available space in the buffer by decreasing data rate associated with incoming data stream (Fig. 4, element 210 and 212). Balakrishnan also discloses the ability to use unallocated memory and/or borrow memory from other expandable memories within a cache server (Column 4, lines 50-60), e.g., borrow from other data streams being handled by the cache server.

10. As per claims 41-44, Balakrishnan discloses claim 34, wherein determining the buffer size fore each data stream comprises evaluating a function (Column 10, Eqs. 19-22) of the data rates at which the buffer would receive and/or send the data stream if requested change takes effect (equations handle variable input and output data rates).

11. As per claim 52, Balakrishnan discloses a data handling system (Fig. 3), comprising a buffer to handle data streams (Fig. 3, 20 and 22); a processor coupled to the buffer (Fig. 3, 50 and 52, processes the rates at which buffer size should increase/decrease) and a memory containing a program instructions that, when executed by the processor cause the processor to perform operations to allocate available space in the buffer among data streams (controller inherently has preset instructions to executes equations disclosed by Balakrishnan), the operations comprising: determining a buffer size for each data stream based on data rate information (Fig. 4, element 66) associated with the data stream; and allocating space in the buffer to each of the data streams according to the determined buffer sizes (Fig. 4, element 68).

12. As per claim 55, Balakrishnan discloses claim 52, wherein the buffer is structured and configured to handle data streams between a source device (Fig. 3, element 48) and a receiver device (Fig. 2, receiver component).

13. As per claim 56, Balakrishnan discloses claim 52, the operations further comprising receiving a request to change the data streams being handled by the buffer (Fig. 4, element 224); determining a second buffer size for the data stream based on data rate information associated with the data streams that the buffer would handle after the requested change takes effect (Fig. 4, element 225); determining whether the sum of the determined second buffer sizes is larger than the available space in the buffer (Fig. 4, element 214, e.g., on the second iteration); and if the sum of the determined buffer sizes is not larger than the available space in the buffer, then allocate space in the buffer according to the determined buffer sizes for each data stream that the buffer will handle after the requested change takes effect (Fig. 4, element 224, continue allocate enough space in buffer to handle data stream).

Allowable Subject Matter

14. Claims 1,3-9, 11-17 and 19-24 allowed as indicated in the previous office action.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to dynamic allocation of buffer space:

U.S. Pat. No. US005862450A to Mandal et al.

U.S. Pat. No. US006075665A to Chainer et al.

U.S. Pat. No. US006591058B1 to O'Connor et al.

U.S. Pat. No. US006708213B1 to Bommaiah et al.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S Chen whose telephone number is 571-272-4143. The examiner can normally be reached on M-F 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ASC
4/5/2005